

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A golf ball comprising:  
a core, wherein the core comprises at least one layer formed of a homogeneous composition comprising at least one rubber, a metal salt of an  $\alpha,\beta$ -unsaturated carboxylic acid, an initiator, and at least one thermoplastic material having a Vicat-softening temperature of at least about 38° C selected from the group consisting of a copoly(ether-ester), copoly(ether-amide), copoly(ester-amide), copoly(urethane-ether), copoly(urethane-ester), maleic anhydride grafted styrene-ethylene-butylene-styrene copolymers, and mixtures thereof; and  
an inner cover disposed about the core; and  
an outer cover disposed about the inner cover.
2. (Original) The golf ball of claim 1, wherein the at least one thermoplastic material has at least one of a hardness of at least about 15 Shore A, a dynamic storage modulus of at least about  $10^4$  dynes/cm<sup>2</sup>, or a loss tangent no greater than 1 at 23°C and a frequency of 1 Hz.
3. (Canceled) The golf ball of claim 1, wherein the at least one thermoplastic material comprises a thermoplastic elastomer.
4. (Canceled) The golf ball of claim 3, wherein the thermoplastic elastomer is a block polymer selected from the group consisting of a copoly(ether-ester), copoly(ether-amide), copoly(ester-amide), copoly(urethane-ether), copoly(urethane-ester), maleic anhydride grafted styrene-ethylene-butylene-styrene copolymers, and mixtures thereof.
5. (Original) The golf ball of claim 1, wherein the amount of the at least one thermoplastic material is from about 1 to 50 parts per hundred of the total parts of the rubber.
6. (Original) The golf ball of claim 1, wherein the at least one rubber is selected from the group consisting of polybutadiene, polyisoprene, ethylene-propylene, styrene-butadiene, ethylene-propylene-diene rubber, a polymer of ethylene-propylene diene monomer, styrene-

ethylene-butylene-styrene copolymer, and mixtures thereof, including functionalized derivatives thereof.

7. (Original) The golf ball of claim 1, wherein the core has a diameter of about 1.55 inches or less.
8. (Original) The golf ball of claim 1, wherein the outer cover comprises a castable reactive liquid material.
9. (Original) The golf ball of claim 8, wherein the castable reactive liquid material is cast polyurethane.
10. (Original) The golf ball of claim 1, wherein the outer cover has a hardness from about 30 Shore D to about 60 Shore D.
11. (Original) The golf ball of claim 1, wherein the outer cover has a thickness from about 0.02 inches to about 0.045 inches.
12. (Previously Amended) The golf ball of claim 1, wherein the inner cover comprises at least one material selected from the group consisting of ionomers, thermoplastic or thermoset polyurethanes, polyetheresters, polyetheramides, or polycesters, dynamically vulcanized elastomers, functionalized styrene-butadiene elastomers, metallocene polymers, polyamides, acrylonitrile butadiene-styrene copolymers (ABS), and blends thereof.
13. (Original) The golf ball of claim 1, wherein the inner cover has a thickness from about 0.01 inches to about 0.05 inches.
14. (Original) The golf ball of claim 1, wherein the inner cover has a hardness of about 65 Shore D or greater.
15. (Currently Amended) A golf ball comprising:  
a core comprising at least two layers, wherein at least one of the core layers is formed of a homogeneous composition comprising at least one rubber, a metal

salt of an  $\alpha,\beta$ -unsaturated carboxylic acid, an initiator, and at least one thermoplastic material having a Vicat-softening temperature of at least about 38°C selected from the group consisting of a copoly(ether-ester), copoly(ether-amide), copoly(ester-amide), copoly(urethane-ether), copoly(urethane-ester), maleic anhydride grafted styrene-ethylene-butylene-styrene copolymers, and mixtures thereof; and

an inner cover disposed about the core; and  
an outer cover disposed about the inner cover.

16. (Canceled) The golf ball of claim 15, wherein the at least one thermoplastic material comprises a thermoplastic elastomer.
17. (Canceled) The golf ball of claim 16, wherein the thermoplastic elastomer is a block polymer selected from the group consisting of a copoly(ether-ester), copoly(ether-amide), copoly(ester-amide), copoly(urethane-ether), copoly(urethane-ester), maleic anhydride grafted styrene-ethylene-butylene-styrene copolymers, and mixtures thereof.
18. (Original) The golf ball of claim 15, wherein the at least one thermoplastic material has at least one of a hardness of at least about 15 Shore A, a dynamic storage modulus of at least about  $10^4$  dynes/cm<sup>2</sup>, or a loss tangent no greater than 1 at 23°C and a frequency of 1 Hz.
19. (Original) The golf ball of claim 15, wherein the amount of the at least one thermoplastic material is from about 1 to 50 parts per hundred of the total parts of the rubber.
20. (Original) The golf ball of claim 15, wherein the at least one rubber is selected from the group consisting of polybutadiene, polyisoprene, ethylene-propylene, styrene-butadiene, ethylene-propylene-diene rubber, a polymer of ethylene-propylene diene monomer, styrene-ethylene-butylene-styrene copolymer, and mixtures thereof, including functionalized derivatives thereof.
21. (Original) The golf ball of claim 15, wherein the core has a diameter of about 1.55 inches or less.

22. (Original) The golf ball of claim 15, wherein the outer cover comprises a castable reactive liquid material.
23. (Original) The golf ball of claim 22, wherein the castable reactive liquid material is cast polyurethane.
24. (Original) The golf ball of claim 15, wherein the outer cover has a hardness from about 30 Shore D to about 60 Shore D.
25. (Original) The golf ball of claim 15, wherein the outer cover has a thickness from about 0.02 inches to about 0.045 inches.
26. (Previously Amended) The golf ball of claim 15, wherein the inner cover comprises at least one material selected from the group consisting of ionomers, thermoplastic or thermoset polyurethanes, polyetheresters, polyetheramides, or polyesters, dynamically vulcanized elastomers, functionalized styrene-butadiene elastomers, metallocene polymers, polyamides, acrylonitrile butadiene-styrene copolymers (ABS), and blends thereof.
27. (Original) The golf ball of claim 15, wherein the inner cover has at least one of a hardness of about 65 Shore D or greater.
28. (Original) The golf ball of claim 15, wherein the inner cover has a thickness from about 0.01 inches to about 0.05 inches.
29. (Currently Amended) A method of forming a golf ball comprising:  
forming a first mixture comprising at least one rubber and at least one thermoplastic material selected from the group consisting of a copoly(ether-ester), copoly(ether-amide), copoly(ester-amide), copoly(urethane-ether), copoly(urethane-ester), maleic anhydride grafted styrene-ethylene-butylene-styrene copolymers, and mixtures thereof;  
mixing said first mixture at a first temperature sufficient to allow substantially homogeneous mixing of said first mixture;  
cooling said first mixture to a second temperature;

forming a second mixture by adding the first mixture to a free-radical initiator having an activation temperature at a temperature above the second temperature;  
shaping and heating the second mixture to at least the activation temperature to crosslink the second mixture so as to form a portion of a golf ball core;  
forming an inner cover disposed about the golf ball core; and  
forming an outer cover thereon.

30. (Canceled) The method of claim 29, wherein the at least one thermoplastic material comprises a thermoplastic elastomer.

Please add the following claims:

31. (New) The golf ball of claim 12, wherein the inner cover comprises at least one ionomer comprising at least one E/X/Y copolymer, wherein E comprises ethylene, wherein X comprises a softening comonomer, and wherein Y comprises at least one acrylic or methacrylic acid neutralized to 100 percent.
32. (New) The golf ball of claim 26, wherein the ionomer comprises acid moieties neutralized to 100 percent.
33. (New) The method of claim 29, wherein the step of forming an outer cover comprises the step of:  
casting a polyurethane about the inner cover.
34. (New) The method of claim 29, further comprising the step of:  
forming an outer core layer disposed between the core and the inner cover.